DOCUMENT RESUME

ED 284 012 CE 047 770

| | |
|---|---|
| TITLE | Evander Childs High School Computer-Literacy and Word-Processing Skills for Bilingual Students 1985-1986. O.E.A. Evaluation Section Report. |
| INSTITUTION | New York City Board of Education, Brooklyn. Office of Educational Assessment. |
| SPONS AGENCY | Department of Education, Washington, DC. |
| PUB DATE | 86 |
| GRANT | G008425057 |
| NOTE | 48p.; For the 1984-1985 report, see ED 269 548. Prepared by the O.E.A. Bilingual Education Evaluation Unit. |
| PUB TYPE | Reports - Evaluative/Feasibility (142) |
| EDRS PRICE | MF01/PC02 Plus Postage. |
| DESCRIPTORS | *Academic Achievement; Accounting; Automation; *Bilingual Students; *Computer Literacy; Employment Potential; *English (Second Language); High Schools; Job Skills; Keyboarding (Data Entry); *Limited English Speaking; Program Effectiveness; Program Evaluation; Vocational Education; *Word Processing |

ABSTRACT

A program sought to enhance the educational achievement and employability of 167 Hispanic students of limited English proficiency in grades 9-12 through elective courses in keyboarding, computer literacy, word processing, and automated accounting. The instructional approach was based on students' English proficiency. Students with the least English proficiency were taught primarily in Spanish; students with greater proficiency were taught in English. In addition to English as a second language, native language arts, and bilingual content-area instruction, all students were enrolled in classes in keyboarding conducted in English and Spanish. Supportive services were also offered to program participants. Program objectives were assessed in English language development (Criterion Referenced English Syntax Test--CREST and the Regents Competency Test--RCT in reading), work study/work readiness skills (staff-developed examination), and attendance (school and program records). A quantitative analysis of students' achievement data indicated that program objectives were met. Program students mastered an average of 1.8 CREST objectives per month in the fall and 2.3 in the spring; demonstrated statistically significant gains on the RCT and in work study/work readiness skills; and had significantly higher attendance. (Data tables are appended.) (YLB)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

O.E.A. Evaluation Section Report

Robert Tobias, Admininstrator of Evaluation
Judith S. Torres, Senior Manager

Grant Number: G00-842-5057

ED284012

# EVANDER CHILDS HIGH SCHOOL

# COMPUTER-LITERACY AND WORD-PROCESSING SKILLS FOR BILINGUAL STUDENTS

1985-1986

Principal:
Wilbur Klein

Project Director:
Vincent Saetta

Curriculum Specialist:
Eric Javier

Prepared by the
O.E.A. Bilingual Education Evaluation Unit

Armando Cotayo, Evaluation Manager
Jose Villegas, Evaluation/Planning Specialist
Shelley M. Fischer, Evaluation/Planning Specialist
Margaret H. Scorza, Editorial/Production Coordinator
Richard E. Baecher, Evaluation Consultant
Ana L. Martinez, Evaluation Consultant

CE047770

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

New York City Public Schools
Office of Educational Assessment
Richard Guttenberg, Director

BEST COPY AVAILABLE

It is the policy of the Board of Education not to discriminate on the basis of race, creed, national origin, age, handicapping condition, sexual orientation, or sex, in its educational programs, activities, and employment policies, as required by law. Any person who believes he or she has been discriminated against should contact: Carole Guerra, Local Equal Opportunity Coordinator, Office of Educational Assessment, 110 Livingston Street, Room 743, Brooklyn, New York 11201. Inquiries regarding compliance with appropriate laws may also be directed to: Mercedes A. Nesfield, Director, Office of Equal Opportunity, 110 Livingston Street, Room 601, Brooklyn, New York; or the Director, Office of Civil Rights, U.S. Department of Education, 26 Federal Plaza, Room 33-130, New York, New York 10278.

## A SUMMARY OF THE REPORT

In its final year of a two-year funding cycle, the Computer-Literacy and Word-Processing Skills for Bilingual Students program sought to enhance the educational achievement and employability of 167 students of limited English proficiency (LEP) in grades nine through twelve through elective courses in keyboarding, computer literacy, word processing, and automated accounting. An additional group of 50 English-proficient students who had previously participated in the school's tax-levy bilingual program participated in the program on a voluntary basis.

The instructional approach was based on students' English proficiency: students with the least English language proficiency were taught primarily in Spanish; students with greater proficiency were taught in English. In addition to receiving English as a second language, native language arts, and bilingual content-area instruction, all students were enrolled in classes in keyboarding conducted in English and Spanish. Supportive services, such as academic counseling, referral services, career and vocational guidance, individualized tutoring, and family contacts were also offered to program participants.

Title VII paid for the administrative and support-services staff. Instructional positions were funded by tax-levy dollars. Supplementary funding was provided by Chapter I. This year, the project developed curricular materials in English and Spanish language computer-assisted instruction (C.A.I.) for beginning, intermediate, and advanced keyboarding classes, as well as related curricular materials on work-study/work-readiness skills. Staff development activities included monthly departmental meetings and workshops, and monthly demonstration lessons for teachers in the use of computer hardware and software. Parents of program students participated in an advisory committee. The Title VII curriculum specialist developed over 42 C.A.I. lessons in various content areas, thereby integrating the computer facilities of Evander Childs with subject-area teaching.

Program objectives were assessed in English language development (Criterion Referenced English Syntax Test [CREST] and the Regents Competency Test in reading); work-study/work-readiness skills (staff-developed examination); and attendance (school and program records). A quantitative analysis of students' achievement data indicates that program objectives were met as follows:

--Program students mastered an average of 1.8 CREST objectives per month in the fall and 2.3 CREST objectives per month in the spring.

--Program students demonstrated statistically significant gains on the Regents Competency Test in reading.

--Program students passing rates in keyboarding skills, were very high, 90 percent in the fall and 92 percent in the spring, but were not statistically significantly different from mainstream passing rates.

--Program students achieved statistically significant gains on a staff-developed test to assess work-study/work-readiness skills.

--The attendance of program students was significantly higher than the attendance of the school-wide population.

The program should continue to offer instruction in computer/technology to the target students with local resources so they can learn computer-related skills, such as keyboarding, word processing, and data-base management.

ACKNOWLEDGEMENTS

The production of this report, as of all Office of Educational Assessment/Bilingual Education Evaluation Unit reports, is the result of a cooperative effort of regular staff and consultants. In addition to those whose names appear on the cover, Eulalia Cabrera has interpreted findings and has integrated material into the reports. Arthur Lopatin has edited the report following the O.E.A. style guide and has written report summaries. Finally, Joseph Rivera, Gladys Rosa, Marcia Gilbert, and Bruce Roach have worked intensively as word processors to produce and correct reports. Without their able and faithful participation, the unit could not have have handled such a large volume of work and still produce quality evaluation reports.

TABLE OF CONTENTS


| | | PAGE |
|---|---|---|
| I. | INTRODUCTION | 1 |
| | The School Site | 1 |
| | Demographic Characteristics | 2 |
| II. | STUDENT CHARACTERISTICS | 3 |
| | Population Served | 3 |
| | Language Dominance | 3 |
| III. | PROGRAM DESCRIPTION | 7 |
| | Goals | 7 |
| | Organization and Staffing | 7 |
| IV. | FINDINGS | 11 |
| | Instructional Component | 11 |
| | Non-Instructional Component | 18 |
| V. | CONCLUSIONS AND RECOMMENDATIONS | 21 |
| VI. | APPENDICES | 23 |

LIST OF FIGURES AND TABLES


| | | PAGE |
|---|---|---|
| Figure 1: | Organizational Chart: Computer-Literacy and Word-Processing Skills Program. | 9 |
| Table 1: | Number and Percent of Program Students by Language and Country of Birth. | 5 |
| Table 2: | Number and Percent of Program Students by Age and Grade. | 6 |
| Table 3: | Results of the Criterion Referenced English Syntax Test. | 13 |
| Table 4: | Results of the Regents Competency Test in Reading. | 14 |
| Table 5: | Comparison of Program and Mainstream Passing Rates in Keyboarding Skills. | 16 |
| Table 6: | Results of a Staff-Developed Test to Assess Work-Study/Work-Readiness Skills. | 17 |

EVANDER CHILDS HIGH SCHOOL

COMPUTER-LITERACY AND WORD-PROCESSING PROGRAM FOR BILINGUAL STUDENTS

| | |
|---|---|
| Location: | 800 Gun Hill Road, Bronx, New York 10467 |
| Year of Operation: | 1985-1986, final year of two-year cycle |
| Target Language: | Spanish |
| Number of Students: | 167 |
| Principal: | Wilbur Klein |
| Project Director: | Vincent Saetta |
| Curriculum Specialist: | Eric Javier |

## I. INTRODUCTION

The Computer-Literacy and Word-Processing Program for Bilingual Students at Evander Childs High School has completed its final year of a two-year Title-VII funding cycle. The major goal of the program was to enhance the educational achievement and employability of 167 Hispanic limited English proficient (LEP) students through elective courses in keyboarding, computer literacy, word processing, and automated accounting. This included 83 LEP students who participated both years. Another group of about 50 English proficient students who were alumni of the school's tax-levy bilingual program also participated on a voluntary basis.

### THE SCHOOL SITE

Evander Childs is a large urban high school located in the North-eastern Bronx. Its setting is typical of outer borough areas of New

York City. It is located in a neighborhood of one- and two-family homes that occupy the middle of blocks whose corners are occupied by apartment houses. The school building is a large structure that takes up an entire block on a wide avenue. It has a pleasant exterior appearance, and a well-trimmed front lawn with trees; its interior is clean and neat, and there is no evidence of overwhelming disciplinary problems such as an unusual profusion of gates and guards.

DEMOGRAPHIC CHARACTERISTICS

The school has a total enrollment of nearly 3,300 students, of whom 63 percent are blacks, and 33 percent are Hispanics. It was reported that these figures reflect the general demographics of the Northeastern Bronx, which in recent years has witnessed a significant northward migration of Hispanics from the South Bronx, as well as an increasing number of immigrants from Spanish-speaking countries.

The students at Evander Childs generally come from lower-middle class families or from families of the working poor. About one third of these families receive federal assistance, and are eligible for the free lunch program. About 45 percent of the students in the school are two years below grade level in mathematics and English, as measured by standardized tests. According to the project director, these figures are typical of other high schools in the Bronx.

## II. STUDENT CHARACTERISTICS

### POPULATION SERVED

The program served a total of 176 students in the 1985-86 academic year. Most of the students were Hispanic, and all were born outside the continental United States (see Table 1). Although some program students had never been in an American school before, many came from schools in other parts of the Bronx, reflecting the steady movement of Hispanics into the northeastern Bronx, where the school is located.

Of the students enrolled in the Title VII program during the 1985-86 academic year, most were in the tenth grade. Fifty-two percent were overage for their grade placement (see Table 2).

### LANGUAGE DOMINANCE

Based on the results of the Language Assessment Battery (LAB) test, the project director grouped students for instructional purposes as follows:

Spanish-Dominant LEP Group. This included those students who scored below the eleventh percentile on the English version of the LAB. These students received instruction in English as a second language (E.S.L.), and were placed in content-area courses in which Spanish was used about 80 percent of the time.

English-Dominant LEP Group. This included those students who scored between the eleventh and the twenty-first percentile on the English LAB. These students also received both E.S.L. instruction and bilingual instruction in content-area courses, but the amount of Spanish used in bilingual instruction was reduced and the amount of English was cor-

respondingly increased, as compared with the Spanish-dominant LEP group. Although these two categories represent an attempt to make instructional services for the target population more specific, "English-dominant LEP Group" is really a misnomer because students who are below the twenty-first percentile on the LAB can hardly be termed English-dominant.

English-Proficient Group. This group included 50 Hispanic students who previously had participated in the school's tax-levy bilingual program and who participated in the present program on a voluntary basis.

TABLE 1

Number and Percent of Program Students by Language and Country of Birth

| Language | Country of Birth | Number | Percent |
|---|---|---|---|
| Spanish | Puerto Rico | 82 | 49 |
| | Dominican Republic | 41 | 25 |
| | Central and South America | 32 | 19 |
| Haitian Creole | Haiti | 1 | less than one |
| Arabic | Yemen | 2 | 1 |
| Chinese and Other Asian | Hong Kong | 1 | less than one |
| | Other | 8 | 5 |
| | TOTAL | 167 | 100 |

•Ninety-three percent of the program students were Spanish speakers.

TABLE 2

Number of Program Students by Age and Grade

| Age | Grade 9 | Grade 10 | Grade 11 | Grade 12 | Total |
|---|---|---|---|---|---|
| 14 | 6 | 1 | 0 | 0 | 7 |
| 15 | 8 | 5 | 0 | 0 | 13 |
| 16 | 11 | 26 | 7 | 1 | 45 |
| 17 | 15 | 18 | 17 | 2 | 52 |
| 18 | 6 | 5 | 8 | 7 | 26 |
| 19 | 2 | 1 | 4 | 10 | 17 |
| 20 | 0 | 3 | 4 | 0 | 7 |
| TOTAL | 48 | 59 | 40 | 20 | 167 |
| Overage | 34 | 27 | 16 | 10 | 87 |
| Percent | 71 | 46 | 40 | 50 | 52 |

- Fifty-two percent of the students were overage for their grade placement.
- Ninth grade had the largest percentage of overage students (71 percent).

## III. PROGRAM DESCRIPTION

### GOALS

As stated, the program's primary goal was to enhance the educational achievement and the employability of the targeted students. The program's secondary goals included: staff development in and the use of computers in instruction; and English and Spanish curriculum development in computer keyboarding and other employment-related fields. Although funded for two years, the program was planned as a three-year sequence, with keyboarding (electronic typing) to be completed in the first two years, computer literacy and word processing to begin in the second year, and automated accounting to begin in the third year.

In its second year, staff development and curriculum design components focused on the use of Computerized Lesson Authoring System (CLAS) software to develop computer-assisted instruction (C.A.I.) materials for E.S.L., Spanish, math, science, and English and Spanish language business courses. In this way, the key concepts of all these courses were reinforced by means of the computer resources at Evander Childs High School.

Specific program objectives included facilitating students' achievement in English reading and English writing, in keyboarding skills, and in work-study and work-readiness skills. In addition, the program sought to improve student attendance.

### ORGANIZATION AND STAFFING

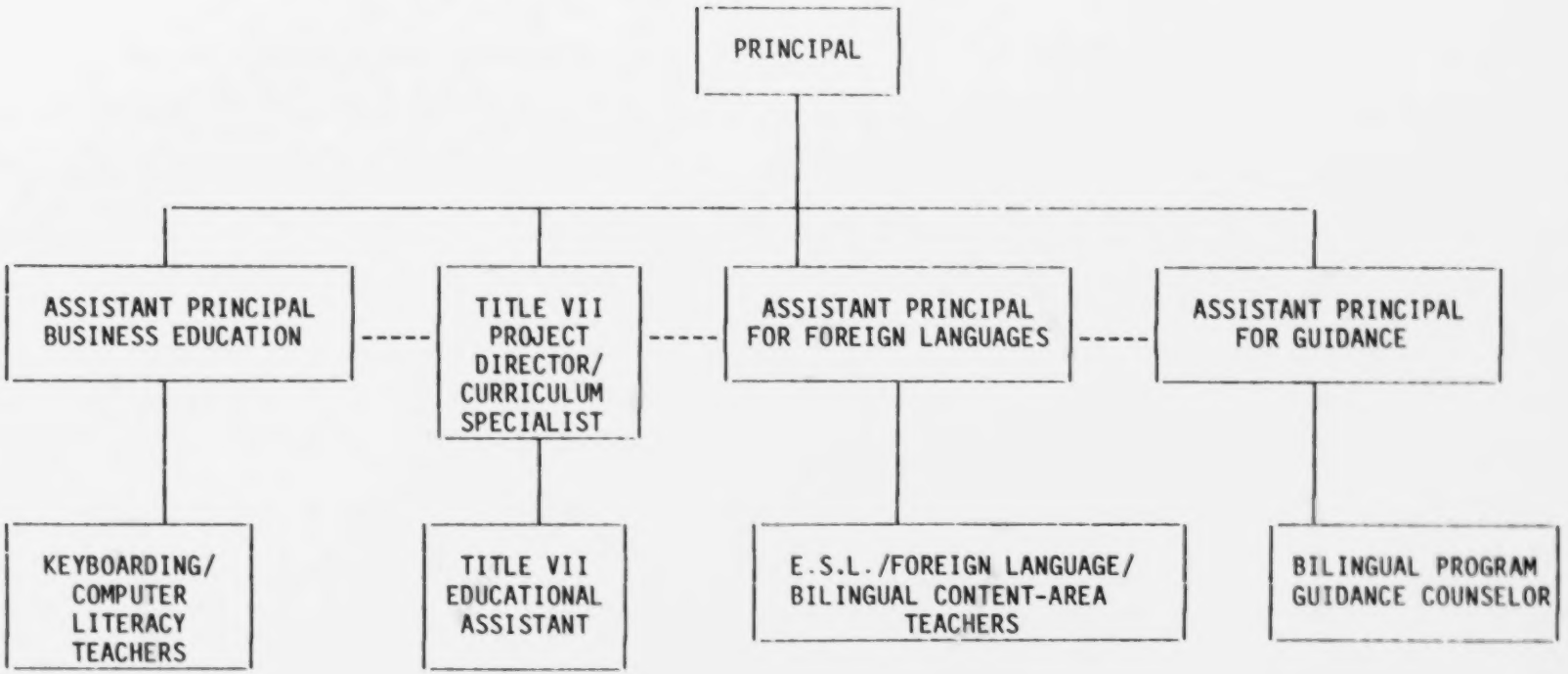
Figure 1 illustrates the program's organization. The Title VII

staff included the project director and an educational assistant. The project director had a master's degree in English and a doctorate in educational administration. He had 19 years' experience as a professional educator. Although he was not totally fluent in Spanish, he had ten years' experience with bilingual programs, as well as in E.S.L. instruction. He was a member of the principal's cabinet and was in contact with the foreign language department (which houses the high school's tax-levy bilingual program), the business department, and the guidance counselor. He facilitated various activities, such as staff development and staff training in computer literacy; providing direct, regular instruction to the program students in computer literacy; acquiring printed materials and software in English and Spanish; and advocating the educational and occupational needs of LEP students to administrators and teachers. In sum, the Title VII project director was a school-wide resource person for introducing computer courses and serving LEP students.

In February 1986, the project director left the program to become special assistant to the Deputy Assistant Superintendent of Special Education for the Bronx regional programs. His duties as curriculum specialist were assumed by someone who was proficient in English and Spanish as well as in C.A.I. materials development. This individual served as the curriculum resource to the various departments of the school so that targeted students continued to receive needed services, and the objectives of the Title VII project were accomplished on schedule. The former project director continued to visit and monitor the program on a weekly basis.

FIGURE 1

Organization Chart: Computer-Literacy and Word-Processing Skills Program


PRINCIPAL
ASSISTANT PRINCIPAL BUSINESS EDUCATION
TITLE VII PROJECT DIRECTOR/ CURRICULUM SPECIALIST
ASSISTANT PRINCIPAL FOR FOREIGN LANGUAGES
ASSISTANT PRINCIPAL FOR GUIDANCE
KEYBOARDING/ COMPUTER LITERACY TEACHERS
TITLE VII EDUCATIONAL ASSISTANT
E.S.L./FOREIGN LANGUAGE/ BILINGUAL CONTENT-AREA TEACHERS
BILINGUAL PROGRAM GUIDANCE COUNSELOR

_____Direct Supervision

----------Cooperation and Communication

The educational assistant had an associate of arts degree and twelve years' experience in education.

Non-Title VII Personnel

Appendix A provides information on the experience and training of other staff members who served program students. It may be noted that, in general, teaching and counseling staff members had several years' experience in general education and in bilingual education. All teachers except two had master's degrees, and all teachers except two (bilingual math and bilingal social studies) were certified in the subjects they taught.

## IV. FINDINGS

Evaluation findings are based on standardized test results, the examination of program materials and records, several site visits, and interviews with project staff. Findings are reported separately for instructional objectives and non-instructional objectives. Instructional objectives included improvement in academic skills, attendance, and job-related skills and knowledge. Non-instructional objectives included curriculum development, teacher training, and parental involvement.

### INSTRUCTIONAL COMPONENT

Program students received E.S.L., native language arts, keyboarding, mathematics, science, and social studies instruction. The program offered classes in algebra, biology, and history in Spanish and English. Students were placed in the class using the language in which they were dominant. Keyboarding classes were conducted primarily in English, but some Spanish was used. Tables displaying courses offered in the fall and spring terms, with enrollment figures and other pertinent information can be found in Appendix B. Information about the attainment of specific instructional objectives within each instructional area is provided below.

### E.S.L.

All project students were required to take one period of E.S.L. each day. Courses were offered on beginning, intermediate, and advanced

levels. Placement at each level was determined by scores on the LAB and the Criterion Referenced English Syntax Test (CREST), and through consultation between the project director and the E.S.L. teachers. Support for E.S.L. instruction was provided through Chapter I and tax-levy funding.

A member of the evaluation team visited an E.S.L. class in the IBM computer lab. The students -- in pairs and singly -- spent most of their time responding to C.A.I. lessons on the formation of questions in English. These C.A.I. materials, produced by the Title VII curriculum specialist in cooperation with the E.S.L. teacher, used multiple-choice formats and gave the students practice in forming questions. A positive aspect of the lesson was the involvement of every student at the computer and the immediate feedback each received on material he or she was studying in the E.S.L. class. During this lesson, the E.S.L. teacher, educational assistant, and curriculum specialist were all available to help the students.

Two specific project objectives are directly related to the E.S.L. instructional program. Data on accomplishments for each of these objectives are reported below.

OBJECTIVE 1: Program students will demonstrate a meaningful improvement in their mastery of English syntax.

Students' achievement of this objective was measured through gain scores on the Criterion Referenced English Syntax Test (CREST), Levels 1, 2, and 3, for both fall and spring semesters. Students were expected to master at least one CREST objective per month during each semester of instruction.

Data were available for 122 students in the fall semester (77 percent of the total number of students) and 104 students in the spring semester (62 percent of the total number of students). Examination of Table 3 reveals that students mastered an average of 1.8 CREST objectives per month in the fall and an average of 2.3 CREST objectives per month in the spring. Accordingly, program objective was achieved.

TABLE 3

Results of the Criterion Referenced English Syntax Test

| Test Level | Number of Students | Pretest Mean | Pretest S.D. | Posttest Mean | Posttest S.D. | Mastery* Mean | Mastery* S.D. | Mean Mastery Per Month |
|---|---|---|---|---|---|---|---|---|
| | | | | Fall | | | | |
| 1 | 61 | 8.5 | 5.7 | 14.6 | 6.4 | 6.1 | 3.2 | 2.2 |
| 2 | 42 | 12.9 | 5.8 | 17.7 | 5.3 | 4.8 | 3.8 | 1.8 |
| 3 | 19 | 11.5 | 2.3 | 13.2 | 1.6 | 1.7 | 1.4 | 0.6 |
| TOTAL | 122 | 10.5 | 5.7 | 15.4 | 5.8 | 4.9 | 3.6 | 1.8 |
| | | | | Spring | | | | |
| 1 | 30 | 8.5 | 7.3 | 13.1 | 6.3 | 4.6 | 2.8 | 2.1 |
| 2 | 33 | 10.4 | 4.3 | 17.1 | 4.9 | 6.7 | 3.6 | 2.6 |
| 3 | 41 | 6.8 | 3.4 | 12.0 | 2.8 | 5.2 | 2.8 | 2.1 |
| TOTAL | 104 | 8.4 | 5.3 | 14.0 | 5.1 | 5.6 | 3.1 | 2.3 |

*Posttest minus pretest.

- Students mastered an average of 1.8 CREST skills per month in the fall and an average of 2.3 CREST skills per month in the spring, thus meeting the proposed objective.

OBJECTIVE 2: Program students will demonstrate a statistically significant improvement ($p < .05$) in their English language reading ability.

Student achievement of this objective was measured by examining the difference between pre- and posttest scores on the Regents Competency Test (R.C.T.) in reading, administered in both the fall and spring semesters. In accordance with the project's stated objective of achieving statistically significant pre- to posttest gains, the data were analyzed using the correlated t-test model.

Table 4 presents an analysis of all program students for whom pretest and posttest scores were available. Ninety-two percent of the students tested made actual gains. The average reading score ($m = 15.5$, S.D. = 9.8) gains was found to be statistically significant ($p = <.05$). Accordingly, project objective in reading was achieved.

TABLE 4

Results of the Regents Competency Test in Reading

| | Number of Students | Pretest Mean | Pretest S.D. | Posttest Mean | Posttest S.D. | Gain Mean | Gain S.D. | Proportion Making Gains |
|---|---|---|---|---|---|---|---|---|
| TOTAL | 83 | 42.8 | 10.6 | 59.3 | 9.6 | 15.5* | 9.8 | 92.0 |

*Statistically significant at the .05 level.

•Ninety-two percent of the students tested made actual gains.

Keyboarding Skills

OBJECTIVE 3: Statistically, a significantly greater proportion of program students will earn passing grades in Keyboarding I and Keyboarding II courses during the fall and spring semesters than a randomly selected group of mainstream students.

Keyboarding courses were offered at three levels in both the fall and spring. Some bilingual materials--C.A.I. lessons developed by the Title VII curriculum specialist and the keyboarding teacher--were in use by the Spanish-dominant students in the spring.

A member of the evaluation team interviewed the teacher of the Spanish keyboarding class, who commented favorably on the use of the IBM computers, the types of C.A.I. lessons being developed by Title VII staff, and the high level of student responsiveness to the use of computer technology. In addition, she indicated that she tried to explain keyboarding concepts in both English and Spanish.

The curriculum specialist felt that the Title VII program helped overcome the obstacles caused by the large size of the keyboarding classes and the lack of special materials for LEP students by providing the funds for materials acquisition and adaptation, and for C.A.I. lessons in various content areas. He also stated that specialized training was needed for members of the various departments so that they might more effectively use the computer resources at Evander Childs High School. This training required the continued commitment of the principal, the use of authoring systems, and the release of time for the coordinator and teachers.

Students Achievement in Keyboarding Skills

Statistical significance between program and mainstream passing rates were determined through the application of a z-test for the difference between two propotions.*

Passing rates for program students were very high -- over 90 percent -- each semester. However, although they were higher than the passing rates of a random sample of mainstream students, the difference was not statistically significant. Thus, the objective was not met, despite students' high achievement rates.

TABLE 5

Comparison of Program and Mainstream
Passing Rates in Keyboarding Skills

| | Program Students | | Mainstream Students | | |
|---|---|---|---|---|---|
| | Number | Passing Rate | Number | Passing Rate | z |
| Fall | 146 | 90.4 | 92 | 83.6 | 1.56 |
| Spring | 106 | 91.5 | 92 | 85.2 | 1.39 |

*Bruning, J.L. and Kintz, B.L.; Computational Handbook of Statistics; Scott, Foresman and Company, 1968.

Work-Study and Work-Readiness Skills

OBJECTIVE 4: Program students will demonstrate a meaningful improvement in their mastery of work-study and work-readiness skills, as measured by gains on a staff-developed instrument administered in the fall and spring.

Program students were pretested in the fall and posttested in the spring with a staff-developed instrument. One hundred questions were included on the pretest (Form A); the same 100 questions were used for the posttest (Form B) with a slight change in format. Test items included questions on using newspaper ads and employment agencies to find jobs; writing business letters and resumes; and the proper behavior and techniques for job interviews.

Examination of Table 6 reveals that students' posttest scores were significantly higher than pretest scores ($p = <.05$). The objective was therefore achieved.

TABLE 6

Results of a Staff-Developed Test to Assess Work-Study/Work-Readiness Skills

| Number of Students | Pretest Mean | Pretest S.D. | Posttest Mean | Posttest S.D. | Gain Mean | Gain S.D. |
|---|---|---|---|---|---|---|
| 83 | 63.6 | 8.2 | 81.5 | 6.2 | 17.9* | 8.1 |

*Statistically significant at the .05 level.

## NON-INSTRUCTIONAL COMPONENT

The main activities of program staff outside the classroom included the development of C.A.I. curricular materials, staff training, meetings with parents, and supportive services designed to increase students' attendance and enhance their career awareness.

### Curriculum Development

OBJECTIVE 5: Keyboarding I and Keyboarding II courses of study will be implemented and completed during the first year of the project.

To achieve the above objective, the curriculum specialist was instrumental in providing and developing C.A.I. lessons in cooperation with the keyboarding teacher. Moreover, the curriculum specialist, after adapting the course content by means of an authoring system (CLAS), was always present during lab instruction. In this way, he was continuously evaluating the C.A.I. materials. This pattern of teacher training and resource assistance was used in other subject areas (E.S.L., science, math, native language arts, and social studies), resulting in 42 distinct sets of C.A.I. materials. This was accomplished in a period of only five months.

### Staff Training

OBJECTIVE 6: Teacher training workshops will be attended by 75 percent of the identified staff participants.

Staff training activities included: monthly departmental meetings; monthly workshops conducted by the project director, the curriculum specialist, other staff members, and guest speakers; and monthly demonstrations of educational applications of computer hardware and software. A complete listing of staff-development activities held inside and outside the school is included as Appendix C.

Attendance at the Evander Childs High School on-site training program was reportedly very high: over 75 percent of the staff from the bilingual program participated in activities devoted to the introduction of the microcomputer in education. Attendance was documented through payroll rosters, sign-in sheets, and time cards. Therefore, the program objective was met.

Parental Involvement

OBJECTIVE 7: At least 75 percent of the parents will attend the workshop meetings during the first project year.

The program's Parent Advisory Committee met two times each semester to discuss program-related issues. These meetings were attended by the project director, the curriculum specialist, the guidance counselor, three bilingual program teachers, and the educational assistant. Parent attendance figures showed that 15 parents attended each session.

According to the project director, parents of program students were informed about available workshops in computer training through letters and phone calls. Unfortunately, because of employment obligations and family responsibilities, most were unable to attend. The program objective was, therefore, not met.

Student Attendance

OBJECTIVE 8: The attendance rate of program students will be significantly higher than the school-wide attendance rate each semester.

As part of the program's overall purpose of meeting the educational and training needs of LEP students, a bilingual guidance counselor offered supportive strategies to both staff and students. Career interest and aptitude testing, and work-readiness and work-study counseling were the bilingual counselor's principal activities.

In addition to the services of the bilingual guidance counselor, several other staff members provided students personal, academic, and career advisement, as well as referrals and tutoring.

A listing of all the supportive services for program students is included as Appendix D. A review of these activities reveals that a well-designed, responsive mechanism was in place at Evander Childs to help achieve the performance goal of higher attendance among LEP students.

The project director reported that 67 students left the program during the academic year. Twenty-four students were fully mainstreamed, seven graduated, seven transferred to another school, four returned to their native country, and twenty-five left for unknown reasons.

Attendance Outcomes. Statistical significance between program and school attendance was determined through the application of a z-test for the significance of a proportion.* This procedure tests whether the difference between one proportion (the program's attendance) and a standard proportion (the school's attendance) is greater than what can be expected by chance variation.

The attendance rate for program students was 89.1 percent, approximately 16 percentage points above the schoolwide attendance rate (72.9 percent). The z-test results ($z = 4.71$) indicated that the difference in attendance rates was significant ($p<.05$). The program objective was met.

---

*Bruning, J.L. and Kintz, B.L.; Computational Handbook of Statistics; Scott, Foresman and Company, 1968.

## V. CONCLUSIONS AND RECOMMENDATIONS

In its final year of operation, the Computer-Literacy and Word-Processing Skills for Bilingual Students program successfully met proposed objectives in E.S.L., English reading, work-study and work-readiness skills, and attendance. Although the objective in the area of keyboarding skills was not met as proposed, approximately 83 percent of the LEP students were enrolled in keyboarding electives and students' passing rates in these courses were high--91 percent in the fall and 92 percent in the spring.

The program's strengths lay in the committment of its director, the knowledge of its curriculum specialist, and the full and active support of the school administration. In the non-instructional areas, the project director and curriculum specialist had initiated procedures for staff development. Through their diligent efforts, curriculum materials adaptation (C.A.I. lesson units) and translation efforts produced several important documents that integrated the use of the school's computer facilities with selected subject areas. Finally, although parental involvement in program events, such as workshops in computer training, was less than desired, approximately 15 parents attended meetings of the Parent Advisory Committee.

To improve the overall effectiveness of the program as it continues supported by local resources, the school administration should continue to integrate course content with its outstanding computer facilities.

The model initiated by the Title VII staff in the last two years--developing C.A.I. course-related lesson--needs to be strengthened and expanded. This will guarantee that LEP students have continuous access to computer application skills, such as keyboarding, word-processing, and data-base management.

# VI. APPENDICES

APPENDIX A

Staff Characteristics: Professional and Paraprofessional Staffs

| Title/Function<br>Note: Please do not include names | Percent Time in Each Function | Education (Degrees) | Is person licensed or certified for this title/function? (Y/N/NA) | Total Yrs. Experience Education | Years Relevant Experience Bilingual/E.S.L./ Foreign Language |
|---|---|---|---|---|---|
| Project Director/Curriculum Spec. | 20%/80% | BA,MA,PROF.DIP,PH.D. | NA | 20 | 11 |
| Educational Assistant/Secretarial | 80%/20% | AA (19 credits) | Y | 13 | 13 |
| A.P. Foreign Language | 100% | BA,MA | Y | 15 | 15 |
| Ch.I ESL Teacher | 100% | BA,MA | Y | 13 | 13 |
| Ch.I. ESL Educational Assistant | 100% | BA | Y | 12 | 12 |
| Tax Levy ESL Teacher | 100% | BA | Y | 11 | 11 |
| Bilingual Soc.Studies Teacher | 40% | BA, MA | N | 9 | 9 |
| Bilingual Math Teacher | 40% | BA, MA | N | 10 | 10 |
| Bilingual Biology Teacher | 40% | BA, MA | Y | 22 | 22 |
| Native Language Arts Teacher | 40% | BA, MA | Y | 17 | 17 |
| Native Language Arts Teacher | 20% | BA, MA | I | 9 | 9 |
| Native Language Arts Teacher | 20% | BA, MA | Y | 18 | 18 |
| Computer Literacy and Word Processing Teacher | 40% | BA, MA | Y | 14 yr. | 2 yr. |
| Computer Literacy and Word Processing Teacher | 40% | BA | Y | 7 yr. | 2 yr. |
| Computer Literacy and Word Processing Teacher | 20% | BA, MA | Y | 9 yr. | 2 yr. |
| Computer Literacy and Word Processing Teacher | 20% | BA, MA | Y | 18 yr. | 3 yr. |
| Computer Literacy and Word Processing Teacher | 20% | BA, MA | Y | 20 yr. | 3 yr. |

APPENDIX B

Instruction in English as a Second Language and English Reading (Fall)

| Course Title & Level (Do not use school codes) | No. of Classes | No. Taught Out of License | No. of Classes with Para. | Total Register | Title VII Register | Periods Per Day | Course Description | Curric.* | Texts/Materials in Use |
|---|---|---|---|---|---|---|---|---|---|
| Ch.I. ESL Beginning | 2 | 0 | 2 | 60 | 60 | 1 | phonetic activities and morphological structures | c/t | |
| Ch.I. ESL Intermediate | 2 | 0 | 2 | 59 | 59 | 1 | continued above, readings and writing exercises | c/t | |
| Ch.I ESL Advanced | 1 | 0 | 1 | 18 | 18 | 1 | functional grammar, transformation, reading, writing | c/t | |
| TaxLevy ESL Beginning | 2 | 0 | 1 | 60 | 60 | 1 | reading for main idea, paragraph development | c/t | |
| TaxLevy ESL Intermediate | 2 | 0 | 0 | 59 | 59 | 1 | reading for inference, composition writing | c/t | |
| TaxLevy ESL Advanced | 1 | 0 | 0 | 18 | 18 | 1 | reading for critical thinking report writing | c/t | |

Instruction in English as a Second Language and English Reading (Spring)

| Course Title & Level (Do not use school codes) | No. of Classes | No. Taught Out of License | No. of Classes with Para. | Total Register | Title VII Register | Periods Per Day | Course Description | Curric.* | Texts/Materials in Use |
|---|---|---|---|---|---|---|---|---|---|
| Ch.I ESL Beginning | 2 | 0 | 2 | 45 | 45 | 1 | oral practice and written word structure, reading | c/t | |
| Ch.I ESL Intermediate | 2 | 0 | 2 | 54 | 54 | 1 | parts of words and sounds context clues, semantics | c/t | |
| Ch.I ESL Advanced | 1 | 0 | 1 | 23 | 23 | 1 | syntactic activities, sentence development, read- | c/t | |
| TaxLevy ESL Beginning | 2 | 0 | 2 | 45 | 45 | 1 | reading of literature, reading and writing skills | c/t | |
| Tax Levy ESL Inter. | 2 | 0 | 0 | 54 | 54 | 1 | reading of literature, informatial reading,writing | c/t | |
| TaxLevy ESL Advanced | 1 | 0 | 0 | 23 | 23 | 1 | reading of literature, composition and reports | c/t | |

*Curriculum codes: C = NYC Curriculum T = Textbook Curriculum O = Other Curriculum
S = NYS Curriculum P = Program-developed Curriculum

## Instruction in the Native Language(s) (Fall)

| Course Title & Level (Do not use school codes) | No. of Classes | No. Taught Out of License | No. of Classes with Para. | Total Register | Title VII Register | Periods Per Day | Course Description | Curric.* | Texts/Materials in Use |
|---|---|---|---|---|---|---|---|---|---|
| Native Language Arts Inter. | 1 | 0 | 0 | 34 | 34 | 1 | emphasis on oral work and structures, city-wide prep | c/t | |
| Native Language Arts Inter. | 1 | 0 | 0 | 31 | 31 | 1 | emphasis on reading and writing, regents prep. | c/t | |
| Native Language Arts Adv. | 1 | 0 | 0 | 32 | 32 | 1 | emphasis on reading of literature, composition | c/t | |
| Native Language Arts HS | 1 | 0 | 0 | 29 | 29 | 1 | emphasis on improving phonics skils, writing skill | c/t | |

## Instruction in the Native Language(s) (Spring)

| Course Title & Level (Do not use school codes) | No. of Classes | No. Taught Out of License | No. of Classes with Para. | Total Register | Title VII Register | Periods Per Day | Course Description | Curric.* | Texts/Materials in Use |
|---|---|---|---|---|---|---|---|---|---|
| Native Language Arts Inter. | 1 | 0 | 0 | 25 | 22 | 1 | emphasis on oral work and structures, city-wide prep | c/t | |
| Native Language Arts Inter. | 1 | 0 | 0 | 33 | 32 | 1 | emphasis on reading and writing, regents prep. | c/t | |
| Native Language Arts HS | 1 | 0 | 0 | 31 | 27 | 1 | emphasis on improving phonics skills, reading comprehension | c/t | |
| Native Language Arts Adv. | 1 | 0 | 0 | 30 | 30 | 1 | emphasis on reading liter ature, composition followup | c/t | |

*Curriculum codes: C = NYC Curriculum T = Textbook Curriculum O = Other Curriculum
S = NYS Curriculum P = Program-developed Curriculum

## Bilingual Instruction in Subject Areas (Fall Semester)

| Course Title & Level (Do not use school codes) | No. of Classes | No. Taught Out of License | No. of Classes with Para. | Total Register | Title VII Register | Percent of Eng. Used | Course Description | Curric.* | Texts/Materials in Use |
|---|---|---|---|---|---|---|---|---|---|
| Biology (Spanish Dom.) | 1 | 0 | 0 | 35 | 35 | 20% | Life Sciences | c/t | Level III |
| Global History (Spanish) | 1 | 1 | 0 | 37 | 37 | 20% | History of all cultures | c/t | Level II |
| Algebra (Spanish Dom.) | 1 | 1 | 0 | 33 | 33 | 20% | Algebra | c/t | Level III |
| Biology (English Dom.) | 1 | 0 | 0 | 40 | 40 | 80% | Life Sciences | c/t | Level III |
| Global History (Eng.Dom.) | 1 | 1 | 0 | 45 | 45 | 80% | History of all cultures | c/t | Level II |
| Algebra (Eng.Dom.) | 1 | 1 | 0 | 38 | 38 | 80% | Algebra | c/t | Level III |

## Bilingual Instruction in Subject Areas (Spring Semester)

| Course Title & Level (Do not use school codes) | No. of Classes | No. Taught Out of License | No. of Classes with Para. | Total Register | Title VII Register | Percent of Eng. Used | Course Description | Curric.* | Texts/Materials in Use |
|---|---|---|---|---|---|---|---|---|---|
| Biology (Span.Dom.) | 1 | 0 | 0 | 33 | 33 | 20% | Life Sciences | c/t | Level IV |
| American Hist. (Spah.Dom. | 1 | 1 | 0 | 32 | 32 | 20% | American Government Series | c/t | Level II |
| Algebra (Span.Dom.) | 1 | 1 | 0 | 30 | 32 | 20% | Algebra | c/t | Level IV |
| Biology (Eng.Dom.) | 1 | 0 | 0 | 29 | 29 | 80% | Life Sciences | c/t | Level IV |
| American Hist. (Eng.Dom.) | 1 | 1 | 0 | 33 | 33 | 80% | American Government Series | c/t | Level II |
| Algebra (Eng.Dom.) | 1 | 1 | 0 | 31 | 31 | 80% | Algebra | c/t | Level IV |
| | | | | | | | | | |

*Curriculum codes: C = HYC Curriculum T = Textbook Curriculum O = Other Curriculum
S = HYS Curriculum P = Program-developed Curriculum

## Specialized Courses (Fall Semester)

| Course Title (track &/or level) | No. of Classes | No. Taught Out of License | No. of Classes with Para. | Total Register | Title VII Register | Percent of Eng. Used | Course Description | Curric. | Texts/Materials in Use |
|---|---|---|---|---|---|---|---|---|---|
| Computer Literacy Skills I (Beg.) | 4 | None | None | 60 | 60 | 20% | Computer operations and basic text editing skills | c/p | |
| Computer Literacy Skills I (Inter.) | 2 | None | None | 59 | 59 | 50% | Computer Operations and inter. text editing skills | c/p | |
| Computer Literacy Skills I (Adv.) | 1 | None | None | 18 | 18 | 80% | DOS and special commands adv. text editing skills | c/p | |
| (All Ch.I ESL students | | | | | | | | | |
| Work Readiness and Work Study Skills III | 7 | None | None | 82 | 82 | 50% | Job seeking skills and job specialization search | c/p | |
| (Only bilingual program students ) | | | | | | | | | |
| (WR/WS skills courses were infused into math, science, and social studies courses.) | | | | | | | | | |

## Specialized Courses (Spring Semester)

| Course Title (track &/or level) | No. of Classes | No. Taught Out of License | No. of Classes with Para. | Total Register | Title VII Register | Percent of Eng. Used | Course Description | Curric. | Texts/Material in Use |
|---|---|---|---|---|---|---|---|---|---|
| Computer Literacy Skills II(Beg.) | 4 | None | None | 45 | 45 | 20% | Second part of course sequence | c/p | |
| Computer Literacy Skills II (Inter.) | 2 | None | None | 54 | 54 | 50% | Second part of course sequence | c/p | |
| Computer Literacy Skills II(Adv.) | 1 | None | None | 23 | 23 | 80% | Second part of course sequence | c/p | |
| (All Ch. I ESL students) | | | | | | | | | |
| Work Readiness and Work Study Skills IV | 7 | None | None | 66 | 66 | 50% | Develop job applications resumes,etc. Job families | c/p | |
| (Only bilingual program students) | | | | | | | | | |
| (WS/WR skills courses were infused into math, science, and social studies courses.) | | | | | | | | | |

Curriculum codes: C = NYC Curriculum T = Textbook Curriculum O = Other Curriculum
S = NYS Curriculum P = Program-developed Curriculum

APPENDIX C

## Staff Development Activities in School

| Strategy | Description(s), Goals, or Titles | Staff Attending No. | Staff Attending Title(s) | Speaker or Presenter | Frequency or Number of Sessions |
|---|---|---|---|---|---|
| Dept. Meetings and Work Shops | Bilingual Education | 1 | Biology Teacher | Dr. Saetta | 1 Department Meeting per Month |
| | Career Infusion | 1 | Social Studies Teach. | Mr. Serina | 1 Work Shop Meeting Afterschool per M |
| | Keyboarding Skills | 1 | Math Teacher | Monroe Business Institute | All staff identified in "Staff |
| | Computer Assisted Inst. | 3 | HLA Teachers | Hostos Community College | Attending" section participated |
| | IBM Computer Operations | 3 | Keyboarding Teachers | Teachers College (Columbia | in department and work shop |
| | Tandy 1000 Computer Oper. | 2 | ESL Teachers | IBM Staff | meetings each month. |
| | Selected Software | 2 | Educational Assist. | Tandy Corp. Staff | |
| | Formatting and Backup | | | | |
| | Copies | | | | |
| Computer Workshop | Programming in BASIC | 33 | All Departments | Bronx Technical Assistance Computer Center Staff | 15 Weeks of intensive training in in TRS80 Computer Lab. 8 Bilingual S |
| Other: demonstration lessons, lectures, etc. | | 2 | ESL Teachers | Dr. Saetta | These demonstration lessons incl |
| | | 3 | HLA Teachers | Dr. Saetta | the use of Tandy 1000 and IBM P |
| | | 3 | Keyboarding Teach. | Dr. Saetta | hardware and peripherals. Teache participated in the process. |
| | | | | | Dr. Saetta had students particip directly hands-on inthese activities. |

## Staff Development Activities Outside School

| Strategy | Description(s), Goals, or Titles | Sponsor/Location | Speaker or Presenter | Frequency/ Number of Sessions | Staff Attending | |
|---|---|---|---|---|---|---|
| | | | | | No. | Title(s) |
| Workshops held outside school (list) | Monroe Business Institute | Fordham Rd. Bx. N.Y. | Computer Staff | 3 | 8 | Proj.Dir., Teachers |
| | Hostos Community College | Grand Concourse, Bx.,N.Y. | Computer Staff | 1 | 6 | Proj.Dir., Teachers |
| | Teachers College, Columbia U | Manhattan, N.Y. | Cameo Computer Staff | 2 | 7 | Project Dir.,Teachers |
| | IBM Corporation | Manhattan, N.Y. | Computer Staff | 2 | 5 | Proj.Dir., Teachers |
| Conferences and symposia (list) | Board of Ed. Computer Unit | Brooklyn, N.Y. | Computer Staff | 5 | 4 | Project Dir.,Teachers |
| | Bronx Technical Assistance Ct. | Bronx, N.Y. | Computer Staff | 6 | 5 | Proj.Dir.,A.P.,Teachers |
| | Apple Corporation | Manhattan, N.Y. | Computer Staff | 1 | 3 | Proj.Dir., Teachers |
| | Sonocraft Corporation | Manhattan, N.Y. | Computer Staff | 1 | 7 | Proj.Dir., Teachers |
| Other | New York Coliseum Computer Expo | Manhattan, N.Y. | Computer Industry Staff | 1 | 4 | Proj.Dir.,A.P.,Teachers |
| | UNIXEXPO Operating Systems | Manhattan, N.Y. | Computer Industry Staff | 1 | 4 | Proj.Dir.,A.P.,Teachers |
| | | | | | | |
| | | | | | | |

APPENDIX D

| TYPE OF SERVICE | STAFF PERSON(S) RESPONSIBLE | FREQUENCY* OF SERVICE OFFERED | LANGUAGE IN WHICH SERVICE IS OFFERED |
|---|---|---|---|
| COUNSELING | Ray Serina, Guid.Couns.<br>Stephanie Lessem, A.P. FL<br>Dr. V. Saetta, Title VII | weekly<br>monthly<br>monthly | Spanish/English<br>Spanish/English<br>Spanish/English |
| • ACADEMIC | | | |
| • PERSONAL | Ray Serina, Guid.Couns. | weekly | Spanish/English |
| • CAREER ORIENTATION | Ray Serina, Guid.Couns.<br>Dr. V. Saetta, Title VII | monthly<br>monthly | Spanish/English<br>Spanish/English |
| • COLLEGE ADVISEMENT | Ray Serina, Guid.Couns.<br>Dr. V. Saetta, Title VII | monthly<br>monthly | Spanish/English<br>Spanish/English |
| • INDIVIDUAL | Ray Serina, Guid.Couns. | as needed | Spanish/English |
| • GROUP | Ray Serina, Guid.Couns.<br>Dr. V. Saetta, Title VII | monthly<br>monthly | Spanish/English<br>Spanish/English |
| REFERRALS | Ray Serina, Guid.Couns.<br>All staff | as needed<br>as needed | Spanish/English<br>Spanish/English |
| • IN-SCHOOL | | | |
| • OUT-OF-SCHOOL | Agencies and Schools | as needed | Spanish/English |
| CAREER/VOCATIONAL | Ray Serina, Guid.Couns.<br>Dr. V. Saetta | monthly<br>monthly | Spanish/English<br>Spanish/English |
| • PLACEMENTS | | | |
| • TRAINING | Dr. V. Saetta, Title VII | monthly<br>on-going | English |
| • LABORATORIES | Dr. Saetta, Title VII | monthly | Spanish/English |
| • CAREER INFUSION | All Staff | monthly | Spanish/English |
| • ADVISEMENT | Ray Serina, Guid.Couns.<br>Dr. Saetta, Title VII | monthly<br>monthly | Spanish/English<br>Spanish/English |
| TUTORING | Gregorio Velazquez<br>(ASPIRA Coordinator) | weekly | Spanish/English |

| TYPE OF SERVICE | STAFF PERSON(S) RESPONSIBLE | FREQUENCY* OF SERVICE OFFERED | LANGUAGE IN WHICH SERVICE IS OFFERED |
|---|---|---|---|
| FAMILY CONTACTS<br>• HOME VISITS | Project Continue Staff | as needed | Spanish/English |
| • TELEPHONE | Project Continue Staff | weekly | Spanish/English |
| • MAIL | Dr. Saetta,Title VII<br>Stephanie Lessen,AP FL<br>Ray Serina,Guid.Couns. | semisemester<br>semisemester<br>monthly | Spanish/English<br>Spanish/English<br>Spanish/English |
| • PROGRAM ACTIVITIES | Dr. Saetta,Title VII<br>Ray Serina,Guid.Couns. | monthly<br>monthly | Spanish/English<br>Spanish/English |
| • SCHOOL ACTIVITIES | Dr. Saetta,Title VII<br>Stephanie Lessen,AP FL | monthly<br>monthly | Spanish/English<br>Spanish/English |
| PARENT INVOLVEMENT<br>• CLASSES | All staff instructing bilingual and special career courses.<br>Title VII staff | semisemester | Spanish/English |
| • WORKSHOPS | Dr. V. Saetta,Title VII | monthly | Spanish/English |
| • ADVISORY COMMITTEE | Dr. Saetta,Title VII | monthly when possib | Spanish/English |

Note: Some of these support services are practiced by Title VII staff as part of their Title VII responsibilities.

The major support services are practiced by full time guidance counselors, Foreign Language Assistant Principal, ASPIRA Coordinator, Project Continue Staff, family workers, and out-of-school agencies.